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(54) EXHAUST EMISSION PURIFYING DEVICE FOR ENGINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an exhaust emission purifying device in which the cooling performance of an oxidation catalyst arranging part and the exchanging workability of an oxidation catalyst are enhanced.

SOLUTION: A muffler part 3 and an oxidation catalyst arranging part 9 are fitted around and surrounded by a wind introducing cover 5, a secondary air supply pipe 7 is communicated with a side further upstream from by the muffler part 3, an annular cooling wind passage 29 is formed between the wind introducing cover 5 and the muffler part 3, and the oxidation catalyst arranging part 9 is attachably/detachably arranged on downstream side bottom walls 22 between which the final exhaust opening 14 of the muffler part 3 is arranged. When the oxidation catalyst arranging part 9 is mounted on the downstream side bottom walls 22, the oxidation catalyst arranging part 9 is tightly stuck to and communicated with the final exhaust opening 14 of the muffler part 3. Also, the wind introducing cover 5 is narrowed down into a funneled shape from the circumference of a position where the oxidation catalyst arranging part 9 is arranged so as to form a cooling wind outlet 30 at the end of the wind introducing cover 5, and the oxidation catalyst arranging part 9 is positioned in the confluent part of the cooling wind of the cooling wind passage 29, therefore cooling wind collided with the oxidation catalyst arranging part 9 can be increased, and cooling performance can be enhanced.

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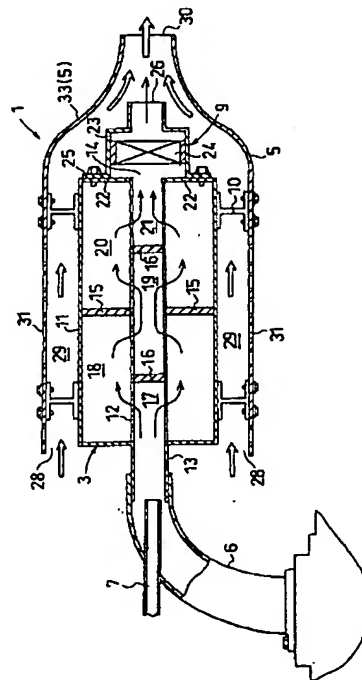
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(54) 【発明の名称】 エンジンの排気ガス浄化装置

(57) 【要約】

【課題】 酸化触媒配設部の冷却性能を高め、酸化触媒の交換作業性を高めた排気ガス浄化装置を提供する。

【解決手段】 マフラ部3と酸化触媒配設部9とを導風カバー5で外嵌包囲し、マフラ部3より上流側に二次空気供給管7を連通し、導風カバー5とマフラ部3との間に環状の冷却風通路29を形成し、マフラ部3の最終排出口14のある下流側底壁22に酸化触媒配設部9を着脱自在に設けている。酸化触媒配設部9を下流側底壁22に装着したときには酸化触媒配設部9はマフラ部3の最終排出口14と密着連通した状態となる。また、導風カバー5を酸化触媒配設部9のある位置周辺から漏斗状に絞ってその先端に冷却風出口30を形成し、冷却風通路29の冷却風の合流部に酸化触媒配設部9が位置させているので、酸化触媒配設部9に当たる冷却風を増やすことができ、冷却性能を高めることができる。



【特許請求の範囲】

【請求項1】 マフラ部(3)と酸化触媒配設部(9)とを導風カバー(5)で外嵌包囲し、少なくとも酸化触媒配設部(9)よりも上流側に二次空気を導入するように構成し、導風カバー(5)と少なくともマフラ部(3)との間に冷却風通路(29)を形成して、マフラ部(3)の上流側と導風カバー(5)との間を開口させて外気取入口(28)を形成し、導風カバー(5)の冷却風出口(30)と排気ガス出口(26)を略一致させ、排気ガス流出による圧力差により、外気取入口(28)から冷却風通路(29)に外気を導入するように構成したエンジンの排気ガス浄化装置において、マフラ部(3)の最終排出口(14)のある所定壁(22)に酸化触媒配設部(9)を着脱自在に設けるとともに、酸化触媒配設部(9)を所定壁(22)に装着したときに酸化触媒配設部(9)がマフラ部(3)の最終排出口(14)と密着連通され、導風カバー(5)を酸化触媒配設部(9)のある位置周辺から漏斗状に絞って漏斗部(33)とし、その漏斗部(33)の先端に冷却風出口(30)を形成し、冷却風通路(29)の冷却風の合流部に酸化触媒配設部(9)が位置するように構成したことを特徴とする、エンジンの排気ガス浄化装置。

【請求項2】 酸化触媒配設部(9)のある漏斗部(33)の周面を除いて、マフラ部(3)に対応する導風カバー(5)の周面に複数の周面孔(31)を設けた、請求項1に記載のエンジンの排気ガス浄化装置。

【請求項3】 導風カバー(5)の漏斗部(33)が円筒状の導風カバー部分(34)と分離可能に構成され、その漏斗部(33)が着脱自在に構成されている、請求項1に記載のエンジンの排気ガス浄化装置。

【請求項4】 着脱自在に構成された導風カバー(5)の漏斗部(33)が酸化触媒配設部(9)と一体的に構成されている、請求項3に記載のエンジンの排気ガス浄化装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明はエンジンの排気ガス浄化装置に関し、より詳しくは酸化触媒に二次空気を供給してエンジンの排気ガスを浄化する排気ガス浄化装置に関する。

【0002】

【従来の技術】従来のエンジンの排気ガス浄化装置として、実開平6-53716号に開示されたものがある。この排気ガス浄化装置60は、図4に示すようにマフラを構成する排気導管51の中央部にマフラ部52を設けるとともに、マフラ部51の上手側、下手側に酸化触媒配設部53、53を設け、上手側酸化触媒配設部53よりさらに上流側に二次空気供給管54を連通している。排気導管51は冷却風通路55を形成した状態で導風カバー56により外嵌包囲され、排気ガスの排出による圧

力差により、環状の外気取入口57から空気を導入して、マフラ部52および酸化触媒配設部53を冷却するように構成している。

【0003】

【発明が解決しようとする課題】しかしながら、上記の従来技術では、以下の問題がある。

(1) 酸化触媒配設部53、53は触媒の反応熱により、マフラ部52よりも高熱になる。しかし、上記従来技術であると酸化触媒配設部53、53のある部分を集中して冷却する構造とはなっていないため、高回転高負荷状態では酸化触媒配設部53、53のある部分が高くなって触媒の寿命が短くなる恐れがある。また、排気導管51、導風カバー56においても酸化触媒配設部53、53のある部分の温度が高くなって部分的な温度差により耐久性が低下する問題がある。

【0004】(2) 上記従来技術の場合、導風カバー56の環状の外気取入口57にゴミ、遮蔽物などが詰まった場合、マフラ部52、酸化触媒配設部53の冷却性能が極端に低下する問題がある。

(3) 上記従来技術の場合、酸化触媒配設部53、53を交換するには、導風カバー56を取り外し、排気導管51を分割して内部の酸化触媒配設部53、53を個別に取り出す必要がありメンテナンス性が悪い。排気ガス浄化装置60全体を1ユニットとして交換することも考えられるが、コストが高くなる問題がある。

【0005】

【発明の目的】本発明は上記課題に鑑みてなされたものであり、本発明の目的は、酸化触媒配設部の冷却性能を高め、外気取入口に遮蔽物が詰まった場合でも冷却性能を維持でき、さらに、酸化触媒配設部の交換作業性を高めた排気ガス浄化装置を提供することにある。

【0006】

【課題を解決するための手段】上記の請求項1の発明を、例えば、図1を参照して説明すれば、マフラ部3と酸化触媒配設部9とを導風カバー5で外嵌包囲し、少なくとも酸化触媒配設部9よりも上流側に二次空気を導入するように構成し、導風カバー5と少なくともマフラ部3との間に冷却風通路29を形成して、マフラ部3の上流側と導風カバー5との間を開口させて外気取入口28を形成し、導風カバー5の冷却風出口30と排気ガス出口26を略一致させ、排気ガス流出による圧力差により、外気取入口28から冷却風通路29に外気を導入するように構成したエンジンの排気ガス浄化装置において、マフラ部3の最終排出口14のある所定壁22に酸化触媒配設部9を着脱自在に設けるとともに、酸化触媒配設部9を所定壁22に装着したときに酸化触媒配設部9がマフラ部3の最終排出口14と密着連通され、導風カバー5を酸化触媒配設部9のある位置周辺から漏斗状に絞って漏斗部33とし、その漏斗部33の先端に冷却風出口30を形成し、冷却風通路29の冷却風の合流部

に酸化触媒配設部9が位置するように構成したことを特徴とする。

【0007】上記の請求項2の発明を、例えば、図1を参照して説明すれば、酸化触媒配設部9のある漏斗部33の周面を除いて、マフラ部3に対応する導風カバー5の周面に複数の周面孔31を設けたことを特徴とする。上記の請求項3の発明を、例えば、図3を参照して説明すれば、導風カバー5の漏斗部33が円筒状の導風カバー部分34と分離可能に構成され、その漏斗部33が着脱自在に構成されていることを特徴とする。上記の請求項4の発明を、例えば、図3を参照して説明すれば、着脱自在に構成された導風カバー5の漏斗部33が酸化触媒配設部9と一体的に構成されていることを特徴とする。

【0008】

【発明の作用及び効果】請求項1の発明であれば、次の作用・効果を奏する。

(イ) マフラ部の最終排出口のある所定壁に酸化触媒配設部を着脱自在に設けることで、酸化触媒配設部が排気ガス浄化装置の端部に位置することになり、酸化触媒配設部の交換が行いやすくなる。

(ロ) 酸化触媒配設部を所定壁に装着したときに酸化触媒配設部がマフラ部の最終排出口と密着連通されているので、排気ガスおよび二次空気のみが酸化触媒を通過することになり、冷却風は酸化触媒に流れ込まないので、酸化触媒に冷却風に混入したゴミなどが付着することを防止できる。

(ハ) 導風カバーを酸化触媒配設部のある位置周辺から漏斗状に絞って漏斗部とし、その漏斗部の先端に冷却風出口を形成し、冷却風通路の冷却風の合流部に酸化触媒配設部が位置するように構成したので、外気取入口から導入された外気は合流部で強い流れとなり、酸化触媒配設部で発生した熱を素早く冷却風出口から排出することができ、冷却性能を高めることができる。

【0009】請求項2の発明であれば、請求項1の発明の効果に加えて、マフラ部に対応する導風カバー5周面に複数の周面孔を設けたことにより、外気取入口がゴミ、遮蔽物などで塞がれたときにも、冷却風を供給することができ、異常時にも触媒が過熱されすぎること防止することができる。

【0010】請求項3の発明であれば、請求項1の発明の効果に加えて、漏斗部が着脱自在に構成されているので、酸化触媒配設部が着脱自在にされていることと相俟って、漏斗部を取り外した後、酸化触媒配設部を所定壁から取り外すことにより、簡単に酸化触媒の交換作業を行うことができる。請求項4の発明であれば、請求項3の発明の効果に加えて、漏斗部が酸化触媒配設部と一体的に構成されているので、漏斗部の着脱作業で酸化触媒配設部の着脱作業も行えることになり、さらに交換時の作業効率が向上する。

【0011】

【発明の実施の形態】以下、本発明を添付図面によって詳細に説明する。図1(A)は本発明に係るエンジンの排気ガス浄化装置の第1実施形態を示す概略縦断面図、図2は排気ガス浄化装置の全体概略構成を示す図である。図2において、排気ガス浄化装置1は、支持ブラケット2によりマフラ部3をエンジン所定部4に支持するとともに、マフラ部3を覆う導風カバー5を設けている。排気ガス浄化装置1のマフラ部3より上流側に連通した排気管6には酸化反応促進用の二次空気を供給する二次空気供給管7が連通され、所定送風手段27によりエアクリーナ8を経た清浄な空気が供給されるように構成されている。

【0012】送風手段27としては、本出願人が特開平5-248229号で提案したようにクランク軸に連通するエンジンの冷却ファンを併用して、冷却ファン風の一部を二次空気供給管に導くように構成してもよい。また、本出願人が実開平5-75431号において提案したように、遠心式ガバナのガバナスリーブの摺動を案内するガバナ軸をガバナ入力ギアに固定し、このガバナ軸の一端部をクランク室外の突出させ、このガバナ軸の一端部に二次空気供給羽根を取り付け、この二次空気供給羽根を覆うハウジングをクランク室壁に露出状態で取り付け、このハウジングから二次空気供給管7を導出して、排気管6に供給するように構成してもよい。いずれにしても、二次空気はエアクリーナ8を介した清浄な空気を供給するようにした方が後述する酸化触媒配設部の触媒にゴミなどが付着することがなく、好ましい。

【0013】排気ガス浄化装置1は、図1に示すように、排気管6の出口にマフラ部3を連通させ、マフラ部3の後方、即ちマフラ部3を経た排気ガス流の下流側に酸化触媒配設部9を着脱自在に取り付け、導風カバー5を支持部材10を介して外嵌包囲した構成となっている。排気管6の所定位置には前記したように二次空気導入管7が突入され、二次空気をマフラ部3内に供給して、排気ガスと二次空気を混合することにより、酸素を増やした状態で酸化触媒配設部9での触媒反応を促進できるようにしている。

【0014】マフラ部3は大径円筒型密閉ケース11に、周面に小孔12を多数開口した筒形排気導管13を貫通させ、筒形排気導管13の上流側口を排気管6と連通させ、その下流側口(最終排出口14)を酸化触媒配設部9と連通させている。大径円筒型密閉ケース11は区画壁15により上流下流の2室に分けられるとともに、筒形排気導管13内に設けられた2つの障壁16により第1排気導管17、第1円筒大径室18、第2排気導管19、第2円筒大径室20、第3排気導管21と区画され、各管17、19、21および各室18、20を排気ガスが流れることで、膨張、迂回を繰り返して排気騒音を低減するようにしている。

【0015】酸化触媒配設部9はマフラ部3の最終排出口14がある下流側底壁22に固定される。酸化触媒配設部9は交換自在に構成されたユニット体であり、2段の径部のうち大径部23に円形の触媒ユニット24が着脱自在に挿嵌されており、酸化触媒配設部9の取付フランジ25をボルトで下流側底壁22に固定することにより、上記第3排気導管21から流れ出した排気ガスが触媒ユニット24を通過して、酸化触媒配設部9の排気ガス出口26から排出されるように構成されている。また、酸化触媒配設部9を下流側底壁22に装着すると、下流側底壁22に酸化触媒配設部9が密着係合して触媒ユニット24には冷却風通路29を流れる冷却風が入らないように構成されている。

【0016】導風カバー5は円筒形のマフラ部3を覆う、上流側が円筒状で下流側が漏斗状の構成をしており、マフラ部3の上流側と導風カバー5との間を環状に開口させて外気取入口28を形成している。マフラ部3と導風カバー5の間および酸化触媒配設部9と導風カバー5の間には、ほぼ一定幅の環状の冷却風通路29が形成されている。なお、導風カバー5の冷却風出口30と酸化触媒配設部9の排気ガス出口26を軸方向に略一致させている。マフラ部3の周面には図1に示すように放射状に支持部材10が立設され、その支持部材10に導風カバー5をボルトなどの着脱可能な固定手段で固定することにより、導風カバー5をマフラ部3から所定間隔で保持するようにしている。導風カバー5のマフラ部3に略相対する範囲には周面に冷却風導入用の周面孔31が多数形成されており、排気ガスのエジェクト作用により導風カバー5の外気取入口28のみならず、周面孔31からも外気を取り入れ、冷却風として機能させることができるようになってい

【0017】上記構成の排気ガス浄化装置の作用について簡単に説明する。排気管6から放出された排気ガスは二次空気導入管7から供給された空気により、酸素が豊富になった状態でマフラ部3内において消音され、酸化触媒配設部9に流れる。酸化触媒配設部9では酸化触媒で排気ガス中の有害成分、例えば、HC、COなどを除去した後、酸化触媒配設部9の排気ガス出口26から放出され、導風カバー5の冷却風出口30から排気ガスは外部へ排出される。

【0018】ここで、排気ガスが導風カバー5の冷却風出口30から勢いよく放出されるので、導風カバー5内の冷却風通路29は負圧になり、外気取入口28および周面孔31から外気が取り入れられ、マフラ部3、酸化触媒配設部9を冷却することができる。また、酸化触媒配設部9が円環状の冷却風通路29を流れる冷却風の合流部に設けられているので、多量の冷却風によって反応熱により最も温度が高くなる酸化触媒配設部9の温度を強力に冷却することができる。つまり、酸化触媒配設部9はマフラ部3の終端部に設けられているので、冷却風

に触れる表面積が大きく放熱性が高いとともに、環状の冷却風通路29の合流冷却風が酸化触媒配設部9で発生した熱を直ぐに冷却風出口30から放出することになるので、酸化触媒配設部9の過熱を抑制することができる。

【0019】また、酸化触媒配設部9はマフラ部3の下流側底壁22に密着しているため、冷却風に混入したゴミなどが触媒に付着して触媒反応が阻害されるという従来技術の問題を解決することができる。さらに、酸化触媒配設部9が設けられた部分の導風カバー5には周面孔31を開口していないので、抵抗がなく酸化触媒配設部9のある冷却風通路29の冷却風の流れを良くできるとともに、触媒からの放射熱が直接、導風カバー5の周面孔31から吹き出すことを防止できる。また、マフラ部3があるところには導風カバー5に周面孔31を設けたので、比較的温度の低いマフラ部3の放熱を促進するとともに、外気取入口28が遮られた場合でも周面孔31から外気を導入できるので、冷却性能を確保して触媒が熱破損する危険性を低減することができる。

【0020】

【第2実施形態】図3(A)は本発明に係るエンジンの排気ガス浄化装置の第2実施形態を示す概略縦断面図、図3(B)は図3(A)のB-B線断面図である。この第2実施形態が図1及び図2に示す第1実施形態に対して異なる構成は、以下の2点だけであり、第1実施形態と同様の部材には同一の符号を付して説明を省略する。第1には、導風カバー5をマフラ部3に相対する固定カバー部34と漏斗部33とに分離可能に構成し、図3(B)に示すように漏斗部33は内側へ放射状に突設された保持部材35で酸化触媒配設部9を保持して、酸化触媒配設部9と漏斗部33とを一体化して構成した点である。

【0021】第2には、漏斗部33と一体化された酸化触媒配設部9を固定カバー部34に取り付ける場合に、マフラ部3の下流側底壁22に密着係合するための係合手段36が下流側底壁22および酸化触媒配設部9に設けられていることにより、酸化触媒配設部9内の触媒ユニット24へ冷却風が入らないように構成されている点である。この第2実施形態であると、導風カバー5の漏斗部33を固定カバー部34から取り外すだけで、酸化触媒配設部9内の触媒ユニット24を交換することができる。また、漏斗部33を固定カバー部34に取り付けるだけで、組み付け作業が完了するので触媒交換作業が簡単化できる利点がある。

【0022】この発明は上記実施形態に限定されるものではなく、この発明の要旨を変更しない範囲内において種々の設計変更を施すことが可能である。以下、そのような実施形態を説明する。

(1) 前記実施形態では、マフラ部3を円筒状で説明したが、四角形など適宜採用できる。また、酸化触媒配設

部9を着脱自在に下流側底壁22に装着する仕方も、公知あるいは慣用の技術が採用できる。

(2) 酸化触媒配設部9の形状も前記実施形態の形に限定されるものではなく、冷却風の抵抗を少なくするために流線形のもので構成してもよい。さらに、放熱性を高めるために冷却風の流る方向に延出する放熱フィンを複数列、酸化触媒配設部9の外周面に立設してもよい。

【図面の簡単な説明】

【図1】図1は本発明に係るエンジンの排気ガス浄化装置の第1実施形態を示す概略縦断面図である。

【図2】図2は排気ガス浄化装置の概略全体構成を示す図である。

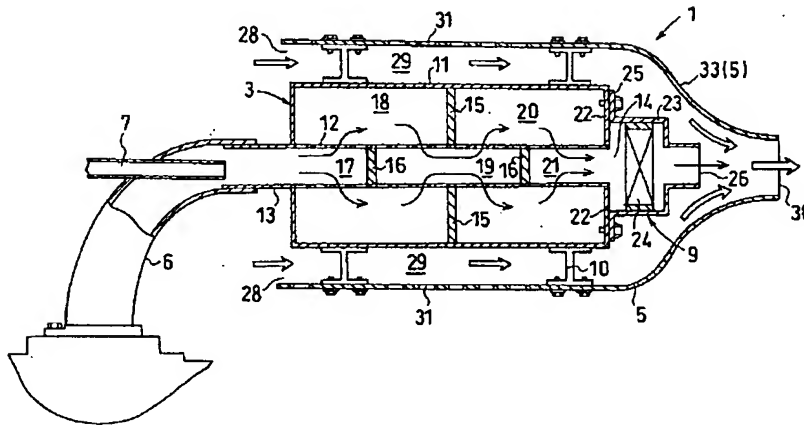
【図3】図3(A)は本発明に係るエンジンの排気ガス浄化装置の第2実施形態を示す概略縦断面図、図3(B)は図3(A)のB-B線断面図である。

【図4】従来のエンジンの排気ガス浄化装置の要部を示す概略縦断面図である。

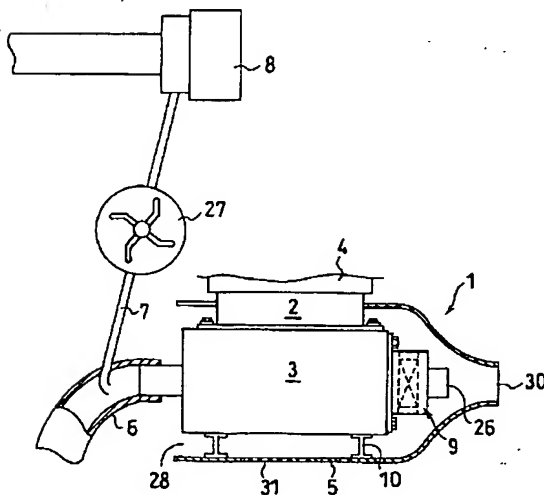
【符号の説明】

3…マフラ部、5…導風カバー、9…酸化触媒配設部、14…最終排出口、22…下流側底壁、26…排気ガス出口、28…外気取入口、29…冷却風通路、30…冷却風出口、31…周面孔、33…漏斗部、34…固定カバー部分。

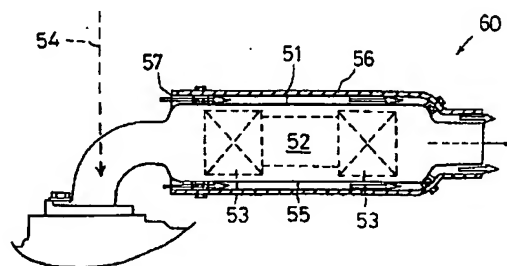
【図1】



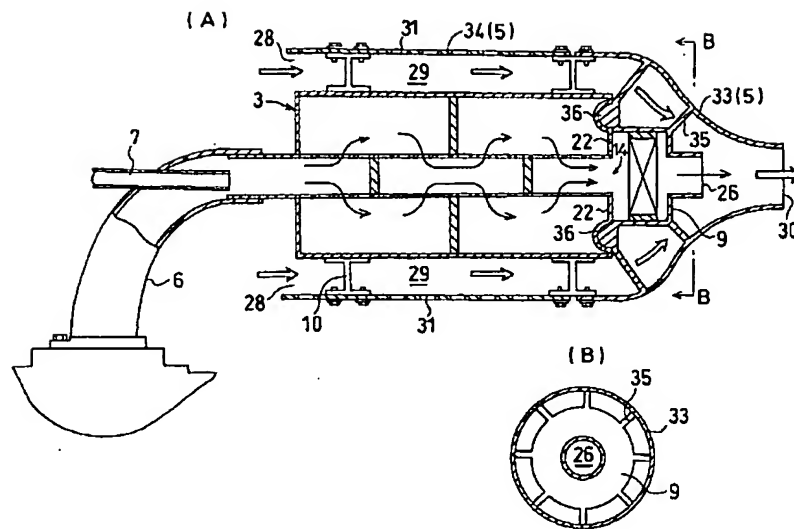
【図2】



【図4】



【図3】



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CLAIMS

[Claim(s)]

[Claim 1] Outer fitting envelopment of the muffler section (3) and the oxidation catalyst arrangement section (9) is carried out with covering (5) of the ** style. Constitute so that the secondary air may be introduced into the upstream from the oxidation catalyst arrangement section (9) at least, and the path (29) of the cooling style is formed between the muffler sections (3) at least with covering (5) of the ** style. Carry out opening of between coverings (5) of the ** style to the upstream of the muffler section (3), form a fresh-air intake (28), carry out abbreviation coincidence of the outlet (30) of the cooling style and exhaust gas outlet (26) of covering (5) of the ** style, and by the differential pressure by exhaust gas outflow In the exhaust gas purge of the engine constituted so that the open air might be introduced into the path (29) of the cooling style from a fresh-air intake (28) While preparing the oxidation catalyst arrangement section (9) in a predetermined wall (22) with the last exhaust port (14) of the muffler section (3), enabling free attachment and detachment When a predetermined wall (22) is equipped with the oxidation catalyst arrangement section (9), the adhesion free passage of the oxidation catalyst arrangement section (9) is carried out with the last exhaust port (14) of the muffler section (3). Extract covering (5) of the ** style from the circumference of a location with the oxidation catalyst arrangement section (9) in the shape of a funnel, and it considers as the pars infundibularis lobi anterioris hypophyseos (33). The engine exhaust gas purge which forms the outlet (30) of the cooling style at the tip of the pars infundibularis lobi anterioris hypophyseos (33), and is characterized by constituting so that the oxidation catalyst arrangement section (9) may be located in the unification section of the cooling style of the path (29) of the cooling style.

[Claim 2] The exhaust gas purge of an engine according to claim 1 which prepared two or more peripheral surface holes (31) in the peripheral surface of covering (5) of the ** style corresponding to the muffler section (3) except for the peripheral surface of the pars infundibularis lobi anterioris hypophyseos (33) with the oxidation catalyst arrangement section (9).

[Claim 3] The exhaust gas purge of an engine according to claim 1 with which the pars infundibularis lobi anterioris hypophyseos (33) of covering (5) of the ** style is constituted disengageable with the cylinder-like covering part (34) of the ** style, and the pars infundibularis lobi anterioris hypophyseos (33) is constituted free [attachment and detachment].

[Claim 4] The exhaust gas purge of an engine according to claim 3 with which the pars infundibularis lobi anterioris hypophyseos (33) of covering (5) of the ** style constituted free [attachment and detachment] is constituted in one with the oxidation catalyst arrangement section (9).

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the exhaust gas purge which supplies the secondary air to an oxidation catalyst and purifies engine exhaust gas in more detail about an engine exhaust gas purge.

[0002]

[Description of the Prior Art] There are some which were indicated by JP,6-53716,U as an exhaust gas purge of the conventional engine. The exhaust air whose exhaust gas purge 60 of this constitutes a muffler as shown in drawing 4 -- while forming the muffler section 52 in the center section of the conduit 51, the oxidation catalyst arrangement sections 53 and 53 are formed in a superior [of the muffler section 51], and lower part side, and the secondary air supply pipe 54 is further opened for free passage from the superior side oxidation catalyst arrangement section 53 to the upstream. Exhaust air -- where the path 55 of the cooling style is formed, outer fitting envelopment is carried out with the covering 56 of the ** style, and by the differential pressure by discharge of exhaust gas, a conduit 51 introduces air from the annular fresh-air intake 57, and it constitutes it so that the muffler section 52 and the oxidation catalyst arrangement section 53 may be cooled.

[0003]

[Problem(s) to be Solved by the Invention] However, there are the following problems with the above-mentioned conventional technique.

- (1) The oxidation catalyst arrangement sections 53 and 53 become high temperature from the muffler section 52 with the heat of reaction of a catalyst. However, since it does not have structure which concentrates the part which has the oxidation catalyst arrangement sections 53 and 53 as it is the above-mentioned conventional technique, and is cooled, there is a possibility that the part which has the oxidation catalyst arrangement sections 53 and 53 in the state of a high rotation heavy load may become high, and the life of a catalyst may become short. Moreover, exhaust air -- the temperature of the part which has the oxidation catalyst arrangement sections 53 and 53 also in a conduit 51 and the covering 56 of the ** style becomes high, and there is a problem to which endurance falls according to a partial temperature gradient.
- [0004] (2) When dust, a shelter, etc. are stuck for the annular fresh-air intake 57 of the covering 56 of the ** style in the case of the above-mentioned conventional technique, there is a problem to which the cooling engine performance of the muffler section 52 and the oxidation catalyst arrangement section 53 falls extremely.
- (3) for exchanging the oxidation catalyst arrangement sections 53 and 53 in the case of the

above-mentioned conventional technique -- the covering 56 of the ** style -- removing -- exhaust air -- it is necessary to divide a conduit 51 and to take out the internal oxidation catalyst arrangement sections 53 and 53 according to an individual, and maintenance nature is bad. Although exchanging the exhaust gas purge 60 whole as one unit is also considered, there is a problem to which cost becomes high.

[0005]

[Objects of the Invention] This invention is made in view of the above-mentioned technical problem, and the purpose of this invention raises the cooling engine performance of the oxidation catalyst arrangement section, even when a shelter is stuck for a fresh-air intake, it can maintain the cooling engine performance, and it is further to offer the exhaust gas purge which raised the exchange workability of the oxidation catalyst arrangement section.

[0006]

[Means for Solving the Problem] If invention of above-mentioned claim 1 is explained with reference to drawing 1, outer fitting envelopment of the muffler section 3 and the oxidation catalyst arrangement section 9 will be carried out with the covering 5 of the ** style. Constitute so that the secondary air may be introduced into the upstream rather than the oxidation catalyst arrangement section 9 at least, and the path 29 of the cooling style is formed between the muffler sections 3 at least with the covering 5 of the ** style. Carry out opening of between the upstream of the muffler section 3, and the coverings 5 of the ** style, form a fresh-air intake 28, carry out abbreviation coincidence of the outlet 30 of the cooling style and the exhaust gas outlet 26 of the covering 5 of the ** style, and by the differential pressure by exhaust gas outflow While forming the oxidation catalyst arrangement section 9 in the predetermined wall 22 with the last exhaust port 14 of the muffler section 3 in the exhaust gas purge of the engine constituted so that the open air might be introduced into the path 29 of the cooling style from a fresh-air intake 28, enabling free attachment and detachment When the predetermined wall 22 is equipped with the oxidation catalyst arrangement section 9, the adhesion free passage of the oxidation catalyst arrangement section 9 is carried out with the last exhaust port 14 of the muffler section 3. The covering 5 of the ** style is extracted from the circumference of a location with the oxidation catalyst arrangement section 9 in the shape of a funnel, and it considers as the pars infundibularis lobi anterioris hypophyseos 33, and the outlet 30 of the cooling style is formed at the tip of the pars infundibularis lobi anterioris hypophyseos 33, and it is characterized by constituting so that the oxidation catalyst arrangement section 9 may be located in the unification section of the cooling style of the path 29 of the cooling style.

[0007] It is characterized by forming two or more peripheral surface holes 31 for invention of above-mentioned claim 2 in the peripheral surface of the covering 5 of the ** style corresponding to the muffler section 3 except for the peripheral surface of the pars infundibularis lobi anterioris hypophyseos 33 with the oxidation catalyst arrangement section 9, when explaining with reference to drawing 1. If invention of above-mentioned claim 3 is explained with reference to drawing 3, the pars infundibularis lobi anterioris hypophyseos 33 of the covering 5 of the ** style will be characterized by being constituted disengageable with the cylinder-like covering part 34 of the ** style, and being constituted free [attachment and detachment of the pars infundibularis lobi anterioris hypophyseos 33]. It is characterized by constituting in one the pars infundibularis lobi anterioris hypophyseos 33 of the covering 5 of the ** style constituted free [attachment and detachment] with the oxidation catalyst arrangement section 9 in invention of above-mentioned claim 4, if it explains with reference to drawing 3.

[0008]

[Function and Effect of the Invention] If it is invention of claim 1, the following operation and effectiveness will be done so.

(b) The oxidation catalyst arrangement section will be located in the edge of an exhaust gas purge, and it becomes easy to perform exchange of the oxidation catalyst arrangement section by preparing the oxidation catalyst arrangement section in a predetermined wall with the last exhaust port of the muffler section, enabling free attachment and detachment.

(b) Since the adhesion free passage of the oxidation catalyst arrangement section is carried out with the last exhaust port of the muffler section when a predetermined wall is equipped with the oxidation catalyst arrangement section, only exhaust gas and the secondary air will pass an oxidation catalyst, and since a cooling wind does not flow into an oxidation catalyst, it can prevent that the dust mixed in the style of cooling adheres to an oxidation catalyst.

(c) Since it constituted so that might extract covering of the ** style from the circumference of a location with the oxidation catalyst arrangement section in the shape of a funnel, it might consider as the pars infundibularis lobi anterioris hypophyseos, the outlet of the cooling style might be formed at the tip of the pars infundibularis lobi anterioris hypophyseos and the oxidation catalyst arrangement section might be located in the unification section of the cooling style of the path of the cooling style The open air introduced from the fresh-air intake can serve as strong flowing in the unification section, can discharge quickly the heat generated in the oxidation catalyst arrangement section from the outlet of the cooling style, and can raise the cooling engine performance.

[0009] Also when it was invention of claim 2 and a fresh-air intake is closed by dust, the shelter, etc. by having prepared two or more peripheral surface holes in covering of ** style 5 peripheral surface corresponding to the muffler section in addition to the effect of the invention of claim 1, a cooling wind can be supplied and it can prevent that a catalyst is overheated too much also at the time of abnormalities.

[0010] If it is invention of claim 3, since the pars infundibularis lobi anterioris hypophyseos is constituted free [attachment and detachment] in addition to the effect of the invention of claim 1, after removing the pars infundibularis lobi anterioris hypophyseos conjointly with attachment and detachment of the oxidation catalyst arrangement section being enabled, exchange of an oxidation catalyst can be easily performed by removing the oxidation catalyst arrangement section from a predetermined wall. If it is invention of claim 4, since the pars infundibularis lobi anterioris hypophyseos is constituted in one with the oxidation catalyst arrangement section in addition to the effect of the invention of claim 3, the attachment-and-detachment activity of the oxidation catalyst arrangement section can also be done by the attachment-and-detachment activity of the pars infundibularis lobi anterioris hypophyseos, and the working efficiency at the time of exchange improves further.

[0011]

[Embodiment of the Invention] Hereafter, an accompanying drawing explains this invention to a detail. Outline drawing of longitudinal section showing the 1st operation gestalt of the exhaust gas purge of the engine which drawing 1 (A) requires for this invention, and drawing 2 are drawings showing the whole exhaust gas purge outline configuration. In drawing 2, the exhaust gas purge 1 has formed the covering 5 of the ** style which covers the muffler section 3 while supporting the muffler section 3 in the engine predetermined section 4 by the bearing bracket 2. The secondary air supply pipe 7 which supplies the secondary air for promotion of oxidation reaction is opened for free passage by the exhaust pipe 6 which was open for free passage from the muffler section 3 of the exhaust gas purge 1 to the upstream, and it is constituted so that the

pure air which passed through the air cleaner 8 with the predetermined ventilation means 27 may be supplied.

[0012] As a ventilation means 27, as these people proposed by JP 5-248229 A, the cooling fan of the engine interlocked with a crankshaft may be used together, and you may constitute so that the part of the cooling-fan style may be led to a secondary air supply pipe. Moreover, as these people proposed in JP 5-75431 U The centrifugal-spark-advancer shaft to which it shows sliding of the centrifugal-spark-advancer sleeve of a centrifugal type centrifugal spark advancer is fixed to a centrifugal-spark-advancer input gear. Make the end section of this centrifugal-spark-advancer shaft project outside a crank case, and a secondary air supply wing is attached in the end section of this centrifugal-spark-advancer shaft. Wrap housing may be attached in a crank case wall for this secondary air supply wing by the exposure, and the secondary air supply pipe 7 may be drawn from this housing, and you may constitute so that an exhaust pipe 6 may be supplied. Anyway, dust etc. does not adhere to the catalyst of the oxidation catalyst arrangement section which the direction which supplied the pure air through an air cleaner 8 mentions later, and the secondary air is desirable.

[0013] As shown in drawing 1 , the exhaust gas purge 1 makes the outlet of an exhaust pipe 6 open the muffler section 3 for free passage, is attached in the back of the muffler section 3, i.e., the downstream of the exhaust gas style which passed through the muffler section 3, for the oxidation catalyst arrangement section 9, enabling free attachment and detachment, and has composition which carried out outer fitting envelopment of the covering 5 of the ** style through the supporter material 10. By rushing into the secondary air installation tubing 7, as described above in the predetermined location of an exhaust pipe 6, supplying the secondary air in the muffler section 3, and mixing the secondary air with exhaust gas, where oxygen is increased, the catalytic reaction in the oxidation catalyst arrangement section 9 can be promoted now.

[0014] the cartridge exhaust air whose muffler section 3 carried out opening of many stomata 12 to the major-diameter cylindrical sealing case 11 at the peripheral surface -- a conduit 13 is penetrated -- making -- cartridge exhaust air -- upstream opening of a conduit 13 is made to open for free passage with an exhaust pipe 6, and the downstream opening (the last exhaust port 14) is made to open for free passage with the oxidation catalyst arrangement section 9 While the major-diameter cylindrical sealing case 11 is divided into two rooms of an upper lower stream of a river with the partition wall 15 It is divided with a conduit 21 the 3rd ****. cartridge exhaust air -- two obstructions 16 established in the conduit 13 -- the 1st exhaust air -- a conduit 17, the 1st cylinder major-diameter room 18, and the 2nd exhaust air -- a conduit 19 and the 2nd cylinder major-diameter room 20 -- He repeats expansion and a detour and is trying to reduce the exhaust air noise because exhaust gas flows each tubing 17, 19, and 21 and each ** 18 and 20.

[0015] The oxidation catalyst arrangement section 9 is fixed to the downstream bottom wall 22 with the last exhaust port 14 of the muffler section 3. the oxidation catalyst arrangement section 9 being the unit object constituted free [exchange], and the circular catalytic unit 24 being fitted in the major diameter 23 free [attachment and detachment] among two steps of diameters, and fixing the mounting flange 25 of the oxidation catalyst arrangement section 9 to the downstream bottom wall 22 with a bolt -- the above -- the exhaust gas which flowed out of the conduit 21 the 3rd **** passes a catalytic unit 24, and it is constituted so that it may be discharged from the exhaust gas outlet 26 of the oxidation catalyst arrangement section 9. Moreover, if the downstream bottom wall 22 is equipped with the oxidation catalyst arrangement section 9, the oxidation catalyst arrangement section 9 carries out adhesion engagement at the downstream bottom wall 22, and it is constituted by the catalytic unit 24 so that the cooling wind which flows

the path 29 of the cooling style may not enter.

[0016] The covering 5 of the ** style has a wrap and the cylindrical upstream in the muffler section 3 of a cylindrical shape, the downstream is constituting the shape of a funnel, and carries out opening of between the upstream of the muffler section 3, and the coverings 5 of the ** style annularly, and forms the fresh-air intake 28. Between the muffler section 3 and the covering 5 of the ** style, and between the oxidation catalyst arrangement section 9 and the covering 5 of the ** style, the annular path 29 of the cooling style of about 1 fixed width is formed. In addition, shaft orientations are made to carry out abbreviation coincidence of the outlet 30 of the cooling style of the covering 5 of the ** style, and the exhaust gas outlet 26 of the oxidation catalyst arrangement section 9. As shown in the peripheral surface of the muffler section 3 at drawing 1, the supporter material 10 is set up by the radial, and he is trying to hold the covering 5 of the ** style at intervals of predetermined from the muffler section 3 by fixing the covering 5 of the ** style to the supporter material 10 with removable fixed means, such as a bolt. Many peripheral surface holes 31 for installation of the cooling style are formed in the range which carries out abbreviation relativity to the muffler section 3 of the covering 5 of the ** style at the peripheral surface, the open air can be adopted according to an EJIEKUTO operation of exhaust gas not only from the fresh-air intake 28 of the covering 5 of the ** style but from the peripheral surface hole 31, the style of cooling can be supposed, and it can be made to function now.

[0017] An operation of the exhaust gas purge of the above-mentioned configuration is explained briefly. The exhaust gas emitted from the exhaust pipe 6 is muffled in the muffler section 3 by the air supplied from the secondary air installation tubing 7, after oxygen has become abundance, and with it, it flows in the oxidation catalyst arrangement section 9. In the oxidation catalyst arrangement section 9, after removing the injurious ingredient in exhaust gas, for example, HC, CO, etc., by the oxidation catalyst, it is emitted from the exhaust gas outlet 26 of the oxidation catalyst arrangement section 9, and exhaust gas is discharged outside from the outlet 30 of the cooling style of the covering 5 of the ** style.

[0018] Here, since exhaust gas is emitted with sufficient vigor from the outlet 30 of the cooling style of the covering 5 of the ** style, it becomes negative pressure, the open air is adopted from a fresh-air intake 28 and the peripheral surface hole 31, and the path 29 of the cooling style in the covering 5 of the ** style can cool the muffler section 3 and the oxidation catalyst arrangement section 9. Moreover, since the oxidation catalyst arrangement section 9 is formed in the unification section of the cooling style which flows the circular ring-like path 29 of the cooling style, a lot of temperature of the oxidation catalyst arrangement section 9 to which temperature therefore becomes high most with heat of reaction in the style of cooling can be cooled powerfully. That is, since the unification cooling wind of the annular path 29 of the cooling style will emit immediately the heat generated in the oxidation catalyst arrangement section 9 from the outlet 30 of the cooling style while the surface area which touches in the style of cooling is large and heat dissipation nature is high, since the oxidation catalyst arrangement section 9 is formed in the trailer of the muffler section 3, overheating of the oxidation catalyst arrangement section 9 can be controlled.

[0019] Moreover, since the oxidation catalyst arrangement section 9 is stuck to the downstream bottom wall 22 of the muffler section 3, the problem of the conventional technique in which the dust mixed in the style of cooling adheres to a catalyst, and catalytic reaction is checked is solvable. Furthermore, since opening of the peripheral surface hole 31 has not been carried out to the covering 5 of the ** style of the part in which the oxidation catalyst arrangement section 9 was formed, while the flow of the cooling style of the path 29 of the cooling style which does not

have resistance and has the oxidation catalyst arrangement section 9 can improve, it can prevent that the radiant heat from a catalyst blows off from the peripheral surface hole 31 of the covering 5 of the ** style directly. Moreover, since the open air can be introduced from the peripheral surface hole 31 even when a fresh-air intake 28 is interrupted while promoting heat dissipation of the muffler section 3 with comparatively low temperature, since the peripheral surface hole 31 was formed in the covering 5 of the ** style at the place with the muffler section 3, the danger that will secure the cooling engine performance and a catalyst will carry out heat breakage can be reduced.

[0020]

[The 2nd operation gestalt] Outline drawing of longitudinal section and drawing 3 (B) which show the 2nd operation gestalt of the exhaust gas purge of the engine which drawing 3 (A) requires for this invention are the B-B line sectional view of drawing 3 (A). The configuration from which this 2nd operation gestalt differs to the 1st operation gestalt shown in drawing 1 and drawing 2 is only the following two points, gives the same sign to the same member as the 1st operation gestalt, and omits explanation. As the covering 5 of the ** style is constituted disengageable the 1st in the fixed covering section 34 and the pars infundibularis lobi anterioris hypophyseos 33 which face the muffler section 3 and it is shown in drawing 3 (B), the pars infundibularis lobi anterioris hypophyseos 33 holds the oxidation catalyst arrangement section 9 by the attachment component 35 which protruded on the radial to the inside, and it is the point which unified the oxidation catalyst arrangement section 9 and the pars infundibularis lobi anterioris hypophyseos 33, and was constituted.

[0021] When attaching in the fixed covering section 34 the oxidation catalyst arrangement section 9 united with the pars infundibularis lobi anterioris hypophyseos 33 by the 2nd, it is the point constituted so that a cooling wind may not go into the catalytic unit 24 in the oxidation catalyst arrangement section 9 by forming the engagement means 36 for carrying out adhesion engagement in the downstream bottom wall 22 of the muffler section 3 at the downstream bottom wall 22 and the oxidation catalyst arrangement section 9. While the catalytic unit 24 in the oxidation catalyst arrangement section 9 is exchangeable only by removing the pars infundibularis lobi anterioris hypophyseos 33 of the covering 5 of the ** style from the fixed covering section 34 as it is this 2nd operation gestalt, there is an advantage which can simplify a catalyst exchange activity only by attaching the pars infundibularis lobi anterioris hypophyseos 33 in the fixed covering section 34 since an attachment activity is completed.

[0022] This invention can perform various design changes within limits which are not limited to the above-mentioned operation gestalt and do not change the summary of this invention.

Hereafter, such an operation gestalt is explained.

(1) Although it was cylindrical and the muffler section 3 was explained with said operation gestalt, a square etc. is employable suitably. Moreover, the method of equipping the downstream bottom wall 22 with the oxidation catalyst arrangement section 9 free [attachment and detachment] can also adopt the technique of well-known or common use.

(2) In order that the configuration of the oxidation catalyst arrangement section 9 may not be limited to the form of said operation gestalt, either and may lessen resistance of the cooling style, it is a streamlined thing and you may constitute. Furthermore, in order to raise heat dissipation nature, the radiation fin which extends to the flow direction of the cooling style may be set up to the peripheral face of two or more trains and the oxidation catalyst arrangement section 9.

[Translation done.]